UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/733,607	12/08/2000	Giulio Tononi	P-NI 4447	4199

23601 7590 09/17/2003

CAMPBELL & FLORES LLP
4370 LA JOLLA VILLAGE DRIVE
7TH FLOOR
SAN DIEGO, CA 92122

EXAMINER	
WEGERT, SANDRA L	

ART UNIT	PAPER NUMBER
1647	16

DATE MAILED: 09/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/733,607	TONONI ET AL.	
	Examiner	Art Unit	
	Sandra Wegert	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) *1-11,14 and 15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12,13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Status of Application, Amendments, and/or Claims

The Request for Reconsideration, filed 7 April 2003 (Paper No. 15) has been entered in full. Claims 1-15 are pending. Claims 1-11, 14 and 15 are withdrawn. Claims 12 and 13 and the protein *BiP* are under examination.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Maintained Objections And/Or Rejections

Information Disclosure Statement

The objection to the Information Disclosure Statement filed in Paper No. 3 (19 January 2001) is *maintained.* The IDS of Paper 3 fails to comply with the provisions of MPEP § 609 because: References 60-100 have no author or date.

Appropriate correction is required.

Claim Objections -

The objection to Claims 12 and 13 because they recite or encompass non-elected inventions, as set forth at p 3 of the previous Office Action (Paper No. 13, 5 November 2002), is *maintained.* Applicants have argued that *BiP* and the other recited proteins in claims 12 and 13 are related as species. However, *BiP* and the other recited proteins were properly restricted as distinct inventions having different functions in the organism. It would therefore constitute an

undue burden to examine all the gene products recited, and associate each of them with a disorder.

Appropriate correction is required.

Claim Rejections- 35 USC § 112, first paragraph-Scope of Enablement

Claims 12 and 13 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of determining the efficacy of a compound in modulating the levels of waking/resting activity levels in flies deficient in dopamine acetyltransferase, does not reasonably provide enablement for a method of determining the efficacy of a compound in ameliorating a *vigilance* disorder in individuals that may include mammals or humans. The reasons for this rejection were set forth at pages 4-6 of the previous Office Action (Paper No. 13, 5 November 2002). Essentially, the applicant has not clearly set forth a mammalian syndrome or disorder that can be diagnosed or treated with the claimed methods, nor given data or evidence that the behavioral disorder seen in *Drosophila* corresponds to a specific disorder in mammals. Similarly, it is not known what the mammalian correlate of the *BiP* protein is, and how mutations in that protein results in a disorder or disease in mammals or humans. It is not clear from the specification what a "vigilance gene profile" is, or how changes in that profile from administration of drugs would be detected and correlated with successful treatment of a disorder.

The claims are directed to a method of determining the efficacy of a compound in ameliorating a vigilance disorder in individuals, including mammals or humans, by measuring gene expression of genes and gene products that have been determined to possess diurnal

expression levels in Drosophila (e.g., expressed during the day or night). The claims do not recite a particular vigilance disorder, although the specification seems to associate a vigilance disorder with a deviation from normal in the *activity* levels and especially the rebound activity levels of normal and DAT^{lo} mutant flies. The specification discloses: methods of measuring activity levels of flies; a mutant fly with a diminished dopamine acetyltransferase enzyme that displays greater rebound *rest* behavior than normal flies; and changes in expression levels of several genes in resting, awake and rest-deprived flies and rats. The instant specification and the literature make it clear that many species of animals, including flies, have homeostatically-maintained cycles of rest and alertfulness that can be studied in detail and even manipulated (see for example: Shaw, et al, 2000, Science 287: 1834-1837). However, the applicant makes the argument that the claimed methods can be used to determine the efficacy of a compound to ameliorate a "vigilance" disorder (see for example page 4, Paper 15, 7 April 2003) without defining a precise nexus between the mutation studied in the instant Specification and an actual mammalian disorder and without setting forth the actual steps used to practice the method. 35 USC § 112, first paragraph requires "full, clear, concise, and exact terms" in order to enable a claimed invention. This would require, then, an actual gene profile of a mammal or human, an association of that profile with a sleep or alertness disorder and examples whereby compounds were screened for their effects on that disorder's gene profile.

Proper analysis of the Wands factors was provided in the previous Office Action. Due to the large quantity of experimentation required to determine how to use the disclosed methods to determine the efficacy of compounds in ameliorating a vigilance disorder, the lack of direction or guidance in the specification regarding the same, the lack of working examples that associate a

vigilance disorder in "individuals" with a gene profile or associate a vigilance disorder in flies or rats with a medical disorder, the state of the art which acknowledges the complexity of behavioral disorders, and the breadth of the claims which embrace methods of finding agents to treat human conditions -undue experimentation would be required of the skilled artisan to make and use the claimed invention in its full scope.

Claim Rejections - 35 USC § 112, second paragraph, indefiniteness.

Claims 12 and 13 are rejected under 35 U.S.C. 112, -second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The reasons for this rejection were set forth at page 6 of the previous Office Action (Paper No. 13, 5 November 2002). The claims recite a "vigilance" disorder and "vigilance" genes. However, one skilled in the art cannot determine the metes and bounds of the claimed invention because the vigilance disorder and the vigilance genes cited in the claims are not specifically defined in the specification beyond a recitation of disorders that may involve sleep or activity levels.

Applicants argue that "vigilance genes" are genes that are "either vigilance-modulated or vigilance-altering", and that a "vigilance disorder" is "any condition that disturbs the normal sleep and wake patterns of an individual". Applicants also argue that "definiteness of claim language must be analyzed, not in a vacuum, but in light of (1) the content of the particular application disclosure, (2) the teachings of the prior art, and (3) the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time that the invention was made" (page 9, Paper 15, 7 April 2003). The examiner agrees that claim

language must be analyzed with the above conditions in mind. However, to define the term "vigilance disorder", the applicant has recited a list of disorders with very different underlying etiologies; indeed, some disorders defined as "vigilance" disorders are temporary and not related to an underlying genetic mutation (e.g., a sleep disorder caused by "medications and drugs" -see pages 3 and 10, Paper 15, 7 April 2003) and thus would not be amenable to study using the claimed methods. In short, defining a term that is not widely-used in the art by associating it with a series of unrelated disorders results in an unclear and indefinite meaning for that term.

Conclusion

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Advisory Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra Wegert whose telephone number is (703) 308-9346. The examiner can normally be reached Monday - Friday from 9:00 AM to 5:00 PM (Eastern Time). If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Gary Kunz, can be reached at (703) 308-4623.

Official papers filed by fax should be directed to (703) 308-4242. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Elizabeth C. Kemmerer

SLW

September 11, 2003

ELIZABETH KEMMERER
PRIMARY EXAMINER